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INTRODUCTION

Despite advances in anti-aging science, a significant unmet need remains for topical products capable of effectively restoring skin volume, with current offerings lacking sustained dermal plumping. Hyaluronic acid (HA) has been a well-recognized plumping ingredient, but it suffers from several drawbacks in terms of penetration, stability, and durability on skin. The present study evaluates a novel HA technology¹ that, when combined with other ingredients, addresses the deficiency in topical skin volume.

METHODS

A | US Clinical Test of Formula

A 12-week clinical study was conducted on 65 females, ages 45-65, Fitzpatrick types I-VI, with mild to moderate signs of aging including loss of plumpness, firmness, sagging, and radiance. Product was applied twice daily with use of regular cleanser, moisturizer, and sunscreen. Efficacy evaluation was conducted immediately post application and after continued use at weeks 2, 4, 8, and 12.

B | Protein Analysis of Clinical Biopsies

Postauricular biopsies were collected from a subset of 12 subjects in the clinical study at baseline and 12 weeks. The intensity and distribution of stained images were analyzed using Halo from Indica Labs.

BACKGROUND

Alpha-lipoic acid-functionalized hyaluronic acid

Functionalizing hyaluronic acid with lipoic acid offers several benefits.² It increases HA's resistance to degradation, resulting in a more stable derivative with a longer residence time. It also creates a synergistic antioxidant effect that improves the radical scavenging performance compared to either material alone, providing enhanced protection against oxidative stress and photoaging.

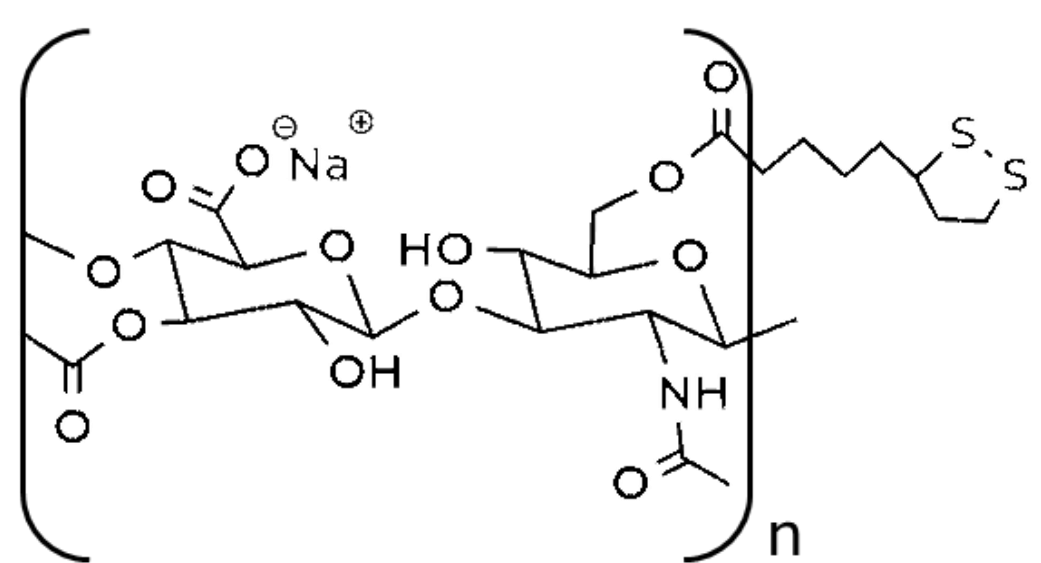
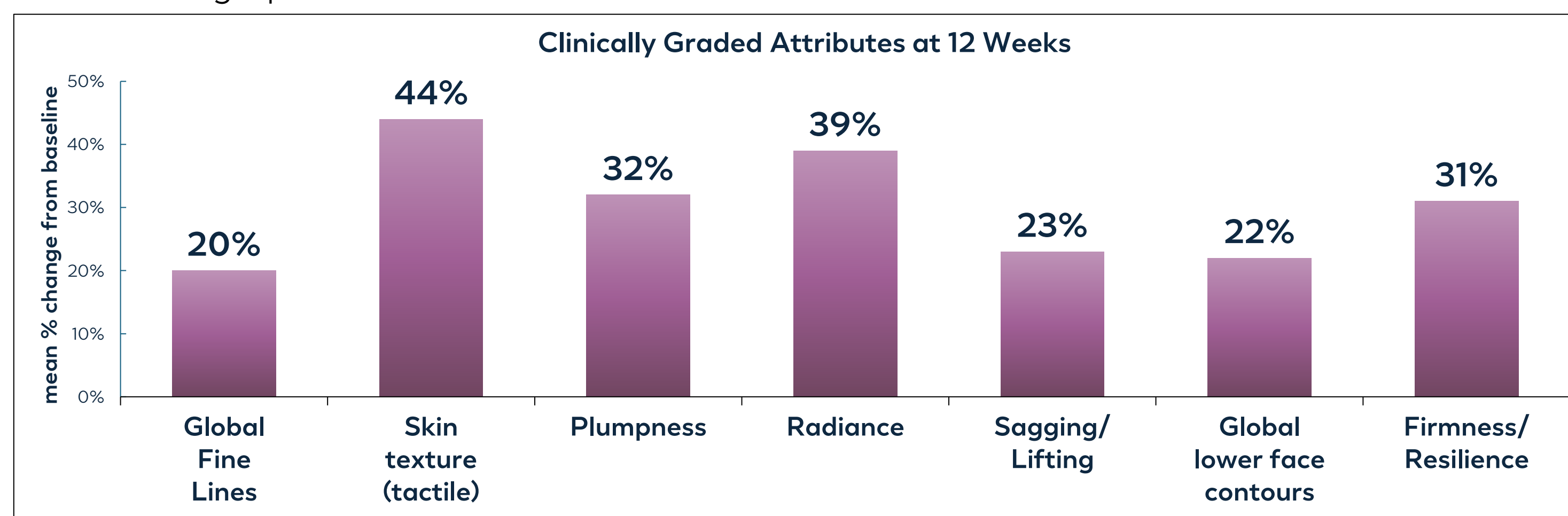


Figure 1. Alpha-lipoic acid-functionalized hyaluronic acid (INCI: Sodium Thiocetyl/Formoyl Hyaluronate)

SERUM RESULTS

A | DEMONSTRATES CLINICAL SIGNIFICANCE IN ALL 12 ATTRIBUTES AFTER 12 WEEKS

In the US clinical test, the serum significantly increased visible plumpness and radiance each by 10% immediately post-application. A highlight of clinically significant week 12 results are below in the bar graph.



VOLUME

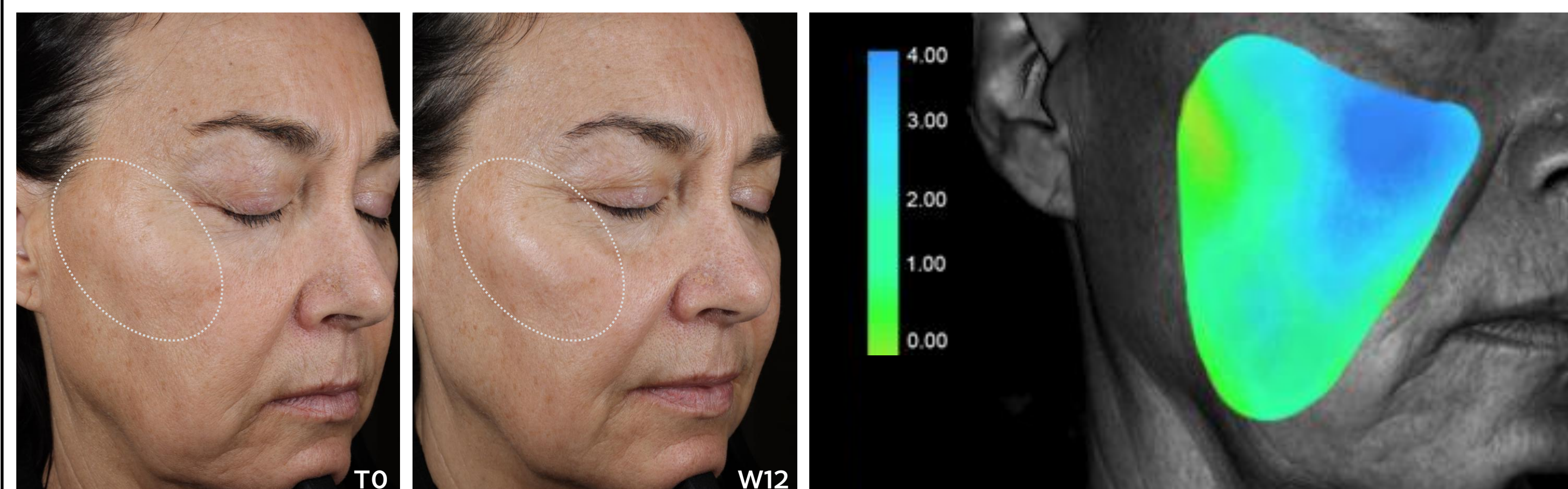


Figure 2A. Average improvements in plumpness and radiance from baseline to 12 weeks.

Figure 2B. Contour map of subject in Fig 2A visualizing increase in volume (mm) for average subject from baseline to 12 weeks.

LIFT & CONTOUR



Figure 3A. Average improvements in lift and contour from baseline to 12 weeks.

Figure 3B. Above average improvements in lift and contour from baseline to 12 weeks.

B | STIMULATION OF COLLAGEN DENSITY AND CD44

Analysis of biopsies collected from the clinical study at baseline and 12 weeks shows a **26% increase in CD44** and a **31% increase in collagen density**. CD44 is an important cell surface receptor for HA that mediates several important cellular functions in the skin, such as extracellular remodeling that can result in increased collagen density.^{3,4}

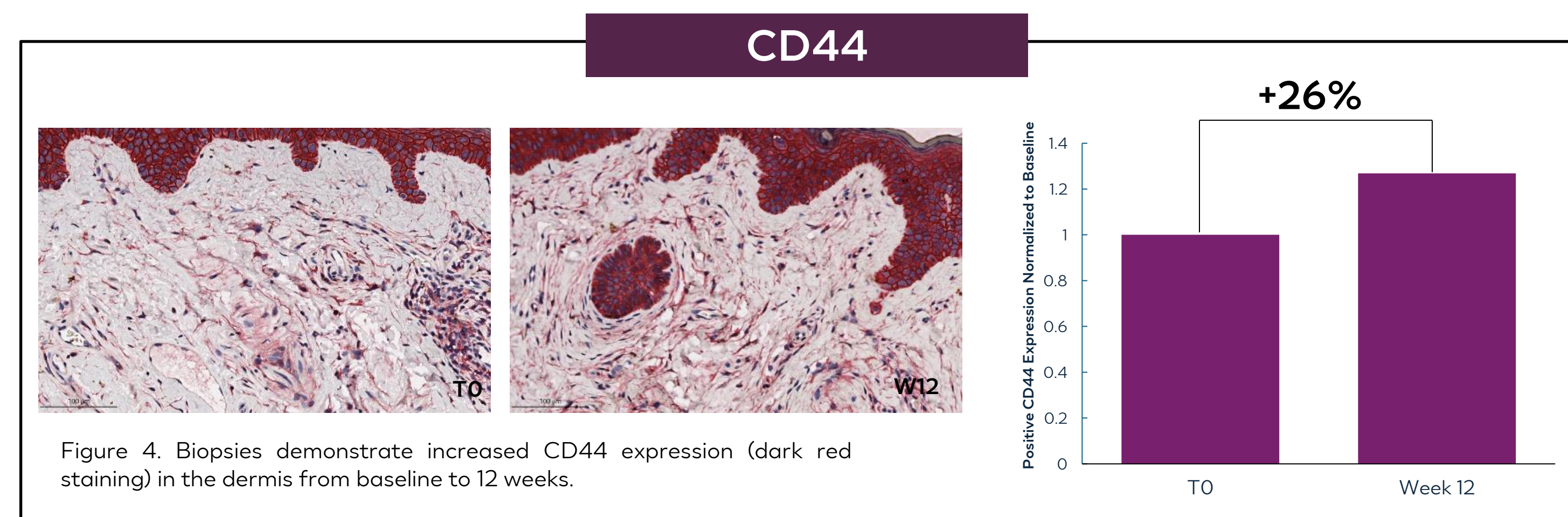


Figure 4. Biopsies demonstrate increased CD44 expression (dark red staining) in the dermis from baseline to 12 weeks.

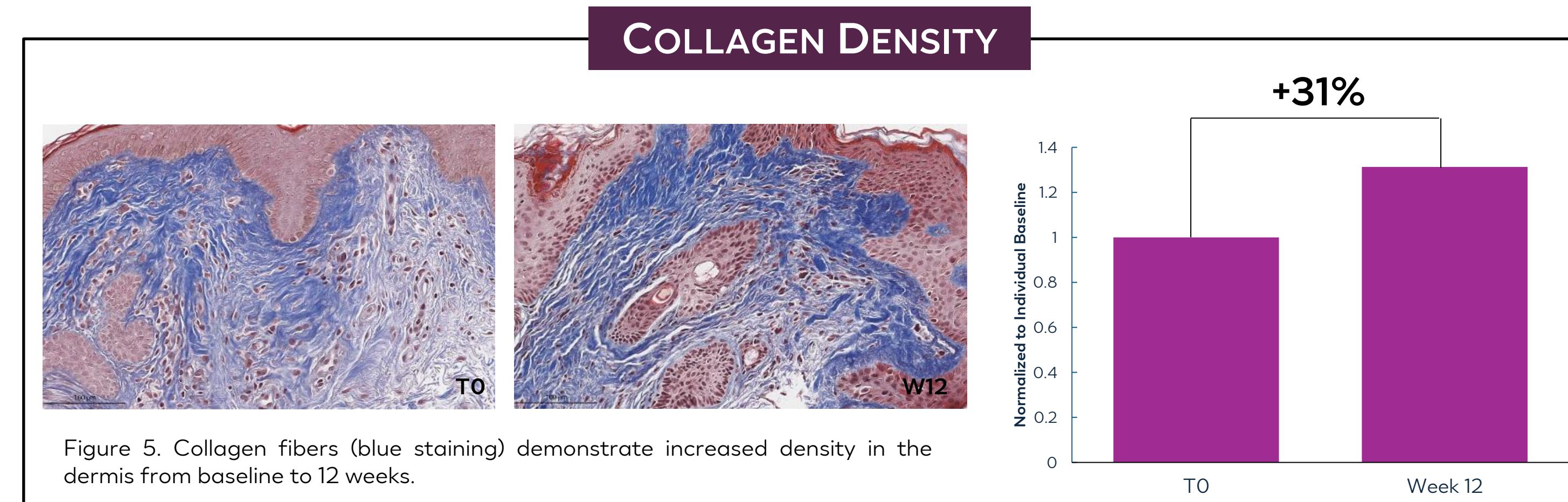


Figure 5. Collagen fibers (blue staining) demonstrate increased density in the dermis from baseline to 12 weeks.

CONCLUSIONS

The clinical results demonstrate the ability of this novel HA serum to provide topical skin volumizing benefits as well as radiance, firmness, lift, contour. These clinical results show the transformation of visible benefits through improved structuring of the skin through multiple skin layers.

REFERENCES

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